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NEW BEES OF THE GENERA XENOGLOSSA AND PODALIRIUS (ANTHOPHORA).

BY T. D. A. COCKERELL, MESILLA, NEW MEXICO.

Xenoglossa patricia, n. sp.—♂. Length about 22 mm., very stoutly built; head and thorax black, densely covered with short fulvous pubescence; abdomen and legs bright chestnut red. Head broad, eyes black, orbits somewhat converging above, ocelli very large, a linear groove descending from middle ocellus, vertex obscurely tessellate; clypeus broad, yellow, its upper margin suffused with orange, and its anterior margin narrowly rufous; surface of clypeus rough so as to look like the skin of a lemon; labrum yellow, with appressed, very short, pale fulvous pubescence; mandibles long, simple, with a large yellow patch near the base, suffused outwardly into a reddish tongue, which gradually loses itself in the black of the tips. Antennæ hardly reaching beyond tegulae, piceous, with the scape, funicle, and first and last joints of flagellum, rufescent. First joint of flagellum longer than the two following, but not so long as the three following. Sculpture of thorax cannot be seen for the pubescence. Tegulae reddish-testaceous. Wings smoky, nervures piceous, venation as in *X. fulva*. Legs with appressed orange-rufous pubescence, spurs rufous, claws black at ends, strongly bifid, spur of anterior tibia with a broad hyaline wing, as is also the case with *X. fulva*. Abdomen moderately shining, with small, close punctures; first segment with fulvous pubescence at base, the rest bare, but for the fine reddish-fulvous pile, conspicuous when the abdomen is viewed from the side. Ventral segments fringed with reddish-fulvous hairs. Apex produced, black at the broadly truncate end; the apex is more produced and much narrower than in *X. fulva*. Sixth segment with a broad blunt tooth on each side.

Habitat.—Mesilla, New Mexico. At about a quarter to nine on the morning of June 21, 1896, the day being very hot and rather cloudy, I opened, in the town of Mesilla, a number of flowers of *Cucurbita perennis*. The flowers contained great numbers of *Diabrotica* 12-

punctata, but, in addition, each fresh flower contained a single bee. On sorting out the bees after returning home, I was astonished to find they were all of the genus *Xenoglossa*, and included three species, viz.: *X. pruinosa*, Say, 4 ♂; *X. patricia*, n. sp., 1 ♂; *X. cucurbitarum*, n. sp., 3 ♂. *X. patricia* is nearest to *X. fulva*, but it is larger and stouter, and the head and thorax are black. It has no resemblance to any of the other species. Smith's *Melissodes rubricata*, from Oajaca, Mexico, is coloured much like *X. patricia*; may it perhaps be a *Xenoglossa*? It differs from *patricia* by the black pubescence on the legs, etc.

Xenoglossa cucurbitarum, n. sp.—♂. Length about 20 mm.; not so stout as *X. patricia*; black, thorax covered with short orange-fulvous pubescence, legs bright chestnut-red. Head broad, orbits nearly parallel, eyes black; face, cheeks and occiput with rather thin pubescence, long and fulvous on occiput, becoming whitish on cheeks and lower part of face. Vertex more or less punctured, the punctures running into linear grooves on the front. A shining channel descending from middle ocellus. Clypeus closely punctured, lemon-yellow, with its whole upper margin and extreme sides rather broadly black, anterior edge rufous, simple. Labrum yellow, with pubescence as in *patricia*. Mandibles with a large yellow patch, the outer end of which becomes rufous. There is a large, short tooth on the inner side of the mandibles, not far from the base;—this is wanting in *patricia*. Antennæ reaching only to tegulae, piceous, scape and flagellum dark rufous; first joint of flagellum a little longer than the two following together. Tegulae reddish-testaceous. Wings smoky, nervures piceous, venation as in *patricia*. Legs with short reddish-fulvous pubescence, spurs rufous, claws black at ends, strongly bifid. Abdomen black, shining, punctured, base of first segment with fulvous hairs; second segment at sides, and the other segments all over, more or less covered with very short, appressed, fulvous pile. Apex produced and truncate, much as in *patricia*. Sixth segment with a tooth on each side.

Habitat.—Mesilla, N. M., as described above.

The following table will serve to separate the species of *Xenoglossa*:—
Legs, except the tarsi, black.

Flagellum ferruginous or testaceous, at least beneath; ♂ with a transverse yellow band on clypeus	<i>ipomaeæ</i> , Rob.
Flagellum black, or nearly so; ♂ with a yellow spot on clypeus, sometimes wanting; ♂ with first joint of flagellum very short	<i>pruinosa</i> , Say.

- Legs wholly rufous, or fulvous ; ♂ with first joint of flagellum long.
 Head and thorax fulvous.....*fulva*, Smith.
 Head and thorax black.
 Abdomen chestnut-red*patricia*, Ckll.
 Abdomen black*cucurbitarum*, Ckll.

X. pruinosa, I have from Pennsylvania and New York ; thence to Mesilla is a wide range. *X. fulva* ranges from Lower California to Arizona and southward to Puebla, Mexico ; its range seems not to touch that of *pruinosa*. *X. ipomææ* is only known from Carlinville, Illinois, where Mr. Robertson found it and *X. pruinosa* visiting *Ipomæa pandurata*.

The above was written June 21. On June 22, at about 7:45 a. m., the flowers of *C. perennis* were open, and about twenty minutes collecting yielded : *X. pruinosa*, 5 ♂ ; *X. patricia*, 2 ♂, 1 ♀ ; *X. cucurbitarum*, 4 ♂, 4 ♀. The honey bees were also visiting the flowers, but seemed disconcerted to find fat Xenoglossæ at the bottom of them. In one flower was found an *Agapostemon texanus*, which, it may be remarked, is not so blue with us as Cresson's Texan types, though otherwise agreeing.

The females of *X. patricia* and *X. cucurbitarum* resemble the males in size and appearance ; the scopula of the hind legs is fairly abundant, but loose ; it is distinctly plumose. In both, the rufous hind tibiae, on the outer surface, exhibit many small black spots. The legs of *cucurbitarum* ♀ are suffused with black at the base, to a variable extent. In *patricia* ♀ the clypeus and labrum are rufous, the mandibles are rufous without at base, and present a reddish-orange streak on the distal half, this being separated from the rufous by black. In *cucurbitarum* ♀ the clypeus is black, with sometimes an obscure reddish or yellowish spot near the anterior edge, its outline not clearly defined ; the labrum also is black, reddish at its upper median border ; the mandibles have an obscure yellow spot near the base, and sometimes a streak as in *patricia*. The hairs surrounding the pygidium in both species are bright orange-fulvous.

Podalirius cleomis, n. sp.—♂. Length, 12 mm., stout, black. Head broad, with long but not very dense pubescence, gray and black mixed, hairs on cheeks beneath long and white. Clypeus (except broad black lateral borders), a narrow supraclypeal band interrupted in middle, triangular lateral face-marks, labrum (except a black boss on each side next to upper margin), and a large patch on outside of mandibles, pure white.

When the face is viewed somewhat from below, it is seen that the anterior margins of both clypeus and labrum (which has a small notch) are black. Antennæ black, the scape white in front. The lateral face-marks are divided above by a broad rounded notch into a linear portion extending a little way along the orbital margin, and a broad rounded portion adjacent to the clypeus. Clypeus and labrum punctured, disc of labrum somewhat confluent punctured. Sides of vertex with very small, close punctures; large, scattered punctures behind the ocelli, which are pale honey colour. Thorax densely covered with mixed gray and black pubescence, the sides with little black. Tegulae black. Wings rather short, hyaline tinged with smoky, nervures and stigma piceous. Legs black, the joints of the tarsi after the first dark ferruginous. First four femora fringed behind with long white hairs. Middle tarsi simple. Hind tibiae stout, with a long, obliquely-placed spine a short distance from the end. The hind femora are also quite stout, but not so stout as the tibiae. First joint of hind tarsi broadened, with a conspicuous erect tooth not far from the base. Hind tibiae with short grayish pubescence, appearing white in some lights. Inner surface of first joint of hind tarsi with short orange-rufous pubescence. Abdomen short and broad, first segment with sparse long grayish hairs, the remaining segments almost nude, the margins of segments 1-6 broadly cream colour or pale yellowish—this colour sharply defined from the black. Apex with two short, widely-separated spines, and short rufescent hairs.

Habitat.—Santa Fé, N. M., August, on *Cleome serrulata*. (Ckll., 1767.) This species is interesting as representing apparently a northward extension of a neotropical type. It resembles the *P. marginatus* (Smith), which Cresson says is found at Orizaba, Mexico; and still more the Mexican *P. tarsatus* (Sichel MS., Dours), from which it differs in the lack of fulvous pubescence, and the white instead of yellow face-marks. Dours says the basal joint of the hind tarsus of *tarsatus* has two spines; in *cleomis* the tibial spur crosses the tarsal spine and, projecting beyond, looks like a second spine. Could Dours have been misled by such an appearance? Dalla Torre, it may be remarked, has proposed to change the name *tarsatus* to *Doursii*, because of preoccupation; but the change is not needed if *Habropoda* be held valid, the other *tarsatus* being of that genus.

Among the U. S. species, *cleomis* resembles *P. californicus* (Cr.) and *P. texanus* (Cr.). From the former it is distinguished by the large

admixture of black in the pubescence, and from the latter by the colour of the pubescence and the black tegulae. Cresson describes only the ♀ of *texanus*.

Besides the type specimen of *cleomis*, I have two others taken at Santa Fé, in August, by V. Boyle. It may be added that *P. cleomis* shows a considerable superficial resemblance to the European *P. albigenus*, Lep., which I have from Marseilles [E. André], but in *albigenus* the abdominal bands are due to pubescence, as in *alamosanus*.

Podalirius alamosanus, n. sp.—♀. Length about 14 mm.; anterior wing, 9 mm.; stout, black, with cinereous pubescence. Head broad, densely pubescent, except on lower part of clypeus and sides of vertex, which are bare; the pubescence cinereous, becoming tinged with ochraceous and mixed with black on occiput and middle of vertex. Face wholly black. Vertex roughened, and with sparse, indistinct punctures; clypeus rough from dense confluent punctures. First joint of flagellum as long as the second, third and fourth together, second shorter than third. Thorax densely covered with ashy pubescence, becoming dull white beneath, tinged with ochreous and mixed with black (especially on scutellum) on dorsum. Tegulae fuscous, hairy on anterior half. Wings smoky-hyaline, nervures and stigma piceous, venation normal. Legs black with cinereous pubescence, apical joints of tarsi rufous. Hind tibiae with short black hairs on inner surface; basal joint of hind tarsi with dark chocolate or fuscous pubescence on inner surface, and a black brush at tip. Abdomen black, the exposed parts with obscure sparse black pubescence; the whole of the first segment, and broad apical margins of segments 2 to 4, covered with very pale ochraceous hairs. Fifth segment with black pubescence, and a patch of pale ochraceous hairs on each side. Ends of ventral segments with pale hairs.

Habitat.—Cañada Alamosa, New Mexico, June 18 [C. H. T. Townsend]. The light abdominal hair-bands are very conspicuous and nearly uniform in width. This species seems to be quite closely allied to *P. mexicanus* (Sichel MS., Dours), but that is larger (17 mm.) and has the pubescence fulvous. Unfortunately, Dours's short description of *mexicanus* contains no reference to the hind tarsi, 5th abdominal segment, etc. The locality of *mexicanus* is vaguely given as Mexico, but the types came from de Saussure, and were probably collected by him on the tableland.

Podalirius vallorum, n. sp.—♂. Length, 12 mm.; anterior wing, 8 mm.; fairly stout, black, head and thorax with dense pale fulvous

pubescence, becoming white on cheeks beneath and lower part of pleura; a very few black hairs on dorsum of thorax. Head broad; vertex shiny, somewhat roughened, sparsely punctured; clypeus rather sparsely punctured. Clypeus (except the narrow anterior margin and a sutural mark on each side above), a supraclypeal band, lateral face-marks, labrum (except the usual pair of spots), a large patch on mandibles, and the scape in front, all lemon-yellow. First joint of flagellum longer than second, and a little longer than third, but not so long as $2 + 3$. Antennæ reaching a little beyond tegulae. Tegulae reddish-testaceous. Wings perfectly hyaline, nervures piceous. Second submarginal cell narrowed fully one-half above. Legs black, claws ferruginous at base. First four femora with long white hairs behind, hind femora with shorter black hairs. All the tibiae with appressed pale mouse-gray pubescence on outer side, the four hindmost with black hairs on inner surface. Hind tibiae somewhat dilated, and bearing a sharp tooth near the end, close to the origin of the spurs. Pubescence of basal joint of tarsi as described for tibiae; basal joint of hind tarsi dilated, flattened, with a short tooth at the side. Intermediate tarsi simple and ordinary. Basal segment of abdomen with long pale ochraceous hairs; the remaining segments with thin, appressed, grayish-white pile on their hindmost halves, not forming bands. Hind margins of segments narrowly hyaline. Extreme apex with black hairs. The eyes in life are of a beautiful dark green.

♀. Similar, but the pubescence more cinereous, and on occiput and the whole dorsum of thorax strongly mixed with black. Face and antennæ wholly black, mandibles with a pale line. First joint of flagellum about or almost as long as $2 + 3 + 4$. Middle of 5th abdominal segment with black hairs, sides with white hairs. Basal joint of hind tarsi with a conspicuous black brush. Wings perfectly clear as in the ♂.

Habitat.—Common at Mesilla and Las Cruces, New Mexico. I first took this species on *Solanum eleagnifolium*, at Las Cruces, July 13, 1893 [Ckll., 313]. The specimen, a ♀, was identified by Mr. Fox as *urbana* of Cresson. Later, I found both sexes at Las Cruces, visiting the flowers of *Ipomoea*. At Mesilla, in the fourth week of June, the species was observed in great numbers, nesting in adobe walls. Up to the present day (June 23) I had no doubt that the insect was really *urbana*, but on more particularly examining a ♂, it was at once evident that it was a distinct species, and further study indicated that it was new. As in the fly-genus *Dolichopus*, this section of *Podalirius* presents us with a

series of females only with great difficulty to be distinguished, but accompanied by males presenting remarkable differences in the armature and clothing of the legs. The females of *P. lesquerellæ*, Ckll., ined., are very like those of *P. vallorum*, but are somewhat larger, have rather shorter antennæ, and fly earlier in the year—in April. But the males of *lesquerellæ* present a remarkable broad brush of black hairs on the last joint of the middle tarsi, while the basal joint of the hind tarsus is ordinary and unarmed.

The ♀ of *lesquerellæ* I have recognized in two specimens taken by Miss Jessie Casad: one at *Lycium* on the College Farm, Mesilla Valley, April 16; the other on cherry, at Mesilla, April 14. In size and general appearance it is like the ♂.

A NEW GRAIN BEETLE.

BY F. H. CHITTENDEN, WASHINGTON, D. C.

The recent discovery that the grain-feeding tenebrionid, *Palorus melinus* or *depressus* of American collections and literature, was in reality composed of two distinct species, as announced by the writer in the May number of *Entomological News* (Vol. VII., p. 138), finds a parallel in the recognition of *Silvanus mercator*, Fauvel, in local collections with *S. surinamensis*, Linn.

The former was not described until 1889 (see *Revue d'Entomologie*, Vol. VII., p. 132), and has hitherto been unrecognized in America, although M. Fauvel surmised that the species was cosmopolitan, from its relationship to *surinamensis*, et al., and its occurrence in France, New Caledonia, and Africa.

From examination of between two and three hundred specimens brought together mostly by myself, in connection with the investigation of insects affecting stored products, for the Division of Entomology of the U. S. Department of Agriculture, I am able to verify this opinion regarding its distribution. This material includes an example from Kaiffa, Syria, identified by one of our first European authorities, Mr. Edm. Reitter. At the Columbian Exposition I collected examples in exhibits of cereal and other seeds from Venezuela, Liberia, and Italy; from the Atlanta Exposition were also obtained specimens from Venezuela; and quite recently the species was received at the Department of Agriculture, in a lot of ground flaxseed, from Mr. H. G. Wolfgang, of Calla, Ohio. There are in the National Museum specimens from Los Angeles, Cal.,

and Astoria, Ills., and I have now living material from an unknown source, but taken at Washington, D. C. To this list of localities may be added Lower California and Arizona, from the collection of Mr. Henry Ulke, of this city.

The close relationship of *mercator* to *surinamensis* makes reasonably certain their virtual identity as regards development, nor is it probable that they differ in any degree in food habits.

The principal points of structural difference between these two species may be best expressed in tabular form, thus:—

- | | |
|---|-----------------------|
| Tempora long, equal to about $\frac{2}{3}$ the diameter of the eye; ♂ with side margins of front strongly reflexed, and with trochanters large, terminating in a spine..... | <i>surinamensis</i> . |
| Tempora very small, tuberculiform, equal to about 1-5 the diameter of the eye; ♂ with side margins of front less prominent, trochanters unarmed | <i>mercator</i> . |

A third species, *S. bicornis*, Er., also strongly resembling *surinamensis*, and differing chiefly in having the side margins of the front developed into two conspicuous horns, has similar habits, and as it is apparently better known in Europe than *mercator*, may occur with us, though as yet I have been unable to discover it.

NOTE ON MAMESTRA COMIS.

BY A. RADCLIFFE GROTE, A. M.

This species is described by me in Bull. Buff. Soc., N. S., III., 85, not in the Geological Survey, as quoted in the Washington Catalogue. A comparison of the description proves that the insect before me could not have been *M. olivacea*. Its terms, both as to colour and markings, completely cover the description of *M. circumcincta*. There can, of course, be no reasonable doubt that the existing so-called "type" of *comis* is a specimen of *olivacea*, in which case the type label has been certainly transferred to another specimen after the type of *comis* was returned to Mr. Hy. Edwards. I do not remember that my type of *comis* was peculiarly set. The species was so much more vividly coloured that it did not even suggest to me *olivacea*, a species of which I possessed a long series.

MR. CARL F. BAKER spends most of the summer collecting in choice localities, up to 12,000 feet altitude, in the mountains of Northern Colorado. After October 1st, his address will be Auburn, Alabama, where he goes to fill the position of Entomologist in the A. and M. College.

THE COLEOPTERA OF CANADA.

BY H. F. WICKHAM, IOWA CITY, IOWA.

XVIII. THE CHRYSOMELIDÆ OF ONTARIO AND QUEBEC—(Continued).

TRIBE VIII.—CHRYSOMELINI.

Most of the members of this tribe are of at least moderate size, and are often quite ornately coloured. In form they are usually robust and convex, while lacking the rotundity of the Cryptocephalini. The genera of Eastern Canada may be arranged thus, the characters used being in the main drawn from the Leconte and Horn "Classification":—

- A. Anterior coxal cavities closed, metasternum long; reddish-yellow above, with black stripes..... *Entomoscelis*.
- AA. Anterior coxal cavities open.
 - b. Claws simple, not toothed.
 - c. Tarsi with third joint entire or scarcely emarginate.
 - Prothorax not margined at base; species rather elongate, slightly convex, striped..... *Prasocuris*.
 - Prothorax margined at base; species larger, more robust and convex.
 - Last joint of palpi truncate..... *Doryphora*.
 - Last joint of palpi dilated..... *Chrysomela*.
 - cc. Tarsi with third joint emarginate or bilobed.
 - Elytra spotted or spotted and striped. Prothorax with a thickened margin..... *Lina*.
 - Elytra unicolorous, not spotted nor striped, except that the metallic gloss is sometimes intensified over longitudinal lines.
 - Elytra with regular punctured striae..... *Plagiodesma*.
 - Elytral punctuation dense and confused... *Gastroidea*.
 - bb. Claws toothed or bifid.
 - Tibiæ dilated and toothed near the tip. Species of oblong, rather convex form; yellow with black spots... *Gonioctena*.
 - Tibiæ slender, neither dilated nor toothed..... *Phyllobecta*.

ENTOMOSCELIS, Chev.

E. adonidis, Fabr., is about .33 in. long, less robust than most of the Chrysomelini; the upper surface of the body dark reddish-yellow; the mouth-parts, sides of head, broad median stripe (and usually small lateral spot) on thorax, suture, and broad lateral stripe on elytra, black.

Antennæ, legs, and most of the under surface, excepting the sides of the prothorax, black. It is found both in America and Europe, and has here gained an additional importance through its destructiveness to turnips, radishes, and cabbages in the Western Provinces.

PRASOCURIS, Latr.

Elongate species of less convex form than usual, upper surface striped with yellow and brassy-green or bronze-black. The three species are thus separated by Mr. Crotch:—

Each elytron with two yellow vittæ not confluent at base. .24

in.....*phellandrii*, Linn.

Yellow vittæ of elytra confluent at base.

Legs black. .18-.22 in.....*obliquata*, Lec.

Tibiæ pale (= *varipes*, Lec.). .14-.18 in.....*vittata*, Oliv.

DORYPHORA, Ill.

Contains two large species of robust and convex form and bright colours. *D. decemlineata*, Say, the "Colorado potato-beetle," is almost too well-known to need a description—its yellowish colour, with black-spotted thorax and the five black stripes (the second and third of which are united at tip) on each elytron, rendering it easily recognizable. *D. clivicollis*, Kirby, is found on milkweed, and reaches a size of from .32 to .48 in. It is of a dark blue, the elytra orange-yellow, usually with three black spots on each, arranged thus: One on the humerus, one near the apex, and one on the suture, confluent with its fellow on the opposite elytron. The spots may all become confluent laterally, thus forming two broad blue bands, or, as in the variety *Rogersii*, Lec. (which is described as having the sides of the thorax nearly parallel behind), may become very much reduced in size and break up into numerous smaller ones.

CHRYSOMELA, Linn.

The species of this genus are more numerous and usually smaller than those of *Doryphora*, to which they bear a general resemblance. They are usually taken by sweeping. I find *C. exclamationis* on *Helianthus*, while *C. elegans* is occasionally abundant on willows. The following table will enable the Canadian species to be separated without much trouble:—

- A. Elytra with tolerably regular stripes, never with numerous spots.
- b. Front and side margins of prothorax pale, sometimes the base also.

- c. Each elytron with more than one vitta besides the sutural one.
 First vitta free from the suture for its entire length, the fourth interrupted. .28-.30 in..... *exclamationis*, Fabr.
 First vitta uniting with the sutural, second and third confluent towards the apex, fourth much reduced. .22-.28 in..... *conjuncta*, Rog.
- cc. Each elytron with broad sutural and one lateral vitta, thorax with black or dark brown discal mark of variable size, rarely reaching the base. .20-.25 in..... *elegans*, Oliv.
- bb. Thorax unicolorous, brownish, more or less bronzed. Elytra with from one to three stripes besides the sutural.
- d. Last joint of palpi very large. .24-.32 in..... *lunata*, Fabr.
- dd. Last joint of palpi moderate.
 Claws approximate, form more oval. .21-.26 in..... *suturalis*, Fabr.
 Claws not approximate, form more oblong.
 .24-.30 in..... *similis*, Rog.
- AA. Elytra with irregular spots, forming more or less labyrinthine patterns; sometimes coalescent, but not forming regular stripes except close to the suture.
- e. Thorax green.
 f. Elytra with spots well separated.
 Suture green, first vitta coalescent with it. .28-.40 in. (Fig. 21). *scalaris*, Lec.
 Suture not green, first vitta free. .24-.35 in..... *philadelphica*, Linn.
- ff. Elytral spots coalescent, forming a reticulate pattern. .30 in.... *labyrinthica*, Stal.
- ee. Thorax either entirely pale or with front margin so; elytral spots very numerous.
 .26-.35 in..... *multipunctata*, Say.

The variety of *multipunctata* called *Bigsbyana* by Kirby is distinguished by the large, dark basal thoracic spot. *C. spirea*, Say, is catalogued as a variety of *philadelphica*, and seems to form a link between that species and *scalaris*, since the sutural line is common and is joined to a shorter lateral one on each side near the base. An interesting paper on the group AA, by Mr. G. W. J. Angell, may be found in the first volume of "Entomologica Americana." His investigations go to show the extreme difficulty of sharply separating the species, though the majority of specimens will give no trouble in their identification.



FIG. 21.

LINA, Meg.

Two species are known from within our limits, both of them oblong insects of moderate size, less convex than *Chrysomela*. The under side of the body, the head above and a broad dorsal thoracic stripe with small lateral dot are usually black or greenish-black; the elytra, in cabinet specimens yellowish or sometimes slightly reddish with black spots. These spots, in *L. lapponica*, Linn., are rounded, or when confluent form transverse bands, while in *L. scripta*, Fabr., they are more elongate, even linear on the disc, and tend to form longitudinal vittæ. A form of *L. lapponica* in which the ground colour of the elytra is red is often found in spring on willows, sometimes mixed with the ordinary yellowish form; sometimes nearly the whole generation may be red, as is the case at Iowa City this year. *L. scripta* occurs chiefly on poplars and cottonwoods; a variety called *confluens*, by Rogers, has the elytra entirely dark except the outer margins; and a form with green elytra is mentioned by Mr. Crotch;—they may be distinguished, however, from the varieties of *lapponica* by having the claw-joint dentate. My specimens of *lapponica* range from .25 to .32 in., while *scripta* averages a little longer.

PLAGIODERA, Redt.

Oval insects of small size and green or blue colour, the upper surface convex, shining; elytra punctato-striate. I usually find them under boards in spring. Mr. Crotch thus separates the two from Canada:—

Elytral interstices finely punctulate, callus visible. .13-.17

in.....*cochleariae*, Gyll.

Elytral interstices subrugulose, no callus. .14-.16 in...*viridis*, Melsch.

The name *cochleariae* is replaced, in the third supplement of Henshaw's Check List, by *armoraciae*, Linn.

GASTROIDEA, Hope.

Contains small species of oblong form, easily recognized by their resemblance to the common *G. polygoni*, Linn., so abundant on knot-grass. Following the arrangement of Mr. Crotch, they may be thus distinguished:—

Thorax and legs reddish; elytra green or blue.....*polygoni*, Linn.

Elytra golden, suture purple; thorax golden, usually purplish on edges.. ..*viridula*, DeG.

Blue or green, head flat, punctuation fine.....*cyanea*, Mels.

The name *viridula* replaces *formosa*, Say. All of the above are small insects, ranging from .16 to .20 inch in length.

GONIOTENA, Redt.

G. pallida, Linn., is found on willows and poplars. It is .25 in. long, yellowish-testaceous, the top of the head and a thoracic spot of variable size (usually attaining the base) blackish. Under surface of body dark, especially towards the middle, tip of abdomen and sides of thoracic segments paler. Legs pale, elytra yellowish or reddish, occasionally nearly piceous, sometimes spotted with black, sometimes immaculate or with only a trace of the spots.

PHYLLODECTA, Kirby.

The Canadian species of *Phyllolecta* seems to be the same as the European *P. vulgatissima*, Linn. It is of oblong-ovate form, not very convex; bluish, greenish or bronzed; thorax distinctly, not very closely, punctured; elytra punctato-striate. Legs black; antennæ black, except the basal joints, which are more or less piceous or ferruginous. Length about .18 in. There are also existent records of *P. vitellina*, Linn., but no specimens have been seen by us, and Dr. Hamilton, to whom we wrote for further information, has expressed the opinion in a letter that all of the Eastern forms belong to the one species. Linnæus has described *vitellina* as being a shorter, less oblong form than *vulgatissima*. The descriptions of some of the older English writers probably confound more than one species, according to the word of Dr. Hamilton, who doubts the occurrence of the true *vitellina* in North America.

NOTES ON APHILANTHOPS AND DESCRIPTION OF A
NEW SPECIES.

BY S. N. DUNNING, HARTFORD, CONN.

Aphilanthops Bakeri, n. sp.

♂. Length, 8.5-10 mm.; of anterior wings, about 6-7 mm. Black with bright yellow markings. Head nearly quadrate, a little wider than high, closely and finely punctate. Eyes entire, elongate oval, inner margins parallel, inclined to light olive green. Ocelli in a triangle, the first a little larger than the last two, and located at the base of a slight cavity. A small cavity back and on the outer side of each of hind ocelli. Head covered with a sparse growth of long whitish pubescence, becoming thicker on face and back of eyes. Clypeus yellow and rounded, with two distinct lobes, each just inside of an imaginary line drawn straight down from base of antennæ, also a small but less distinct lobe between

these two, very slightly blackened between, and including lobes. Mandibles yellow outwardly, rufous tipped. A narrow curved yellow line just behind eyes. Sides of face yellow, same extending above base of antennæ on both sides and between. Overlapping base of mandibles is a small fringe of whitish hair. Scape of antennæ yellow-ringed at tip and below, above black, but yellow predominating. First joint flagellum, short, black, rounded, about one-third as long as second, which, with four following joints, is distinctly rufous below, and either rufous above or inclined to black; rest of antennæ black, except the rufous tip. Thorax black and covered with a sparse growth of whitish hair. Collar, sometimes spot below, tegulæ, tubercles and curved spot just back of tubercles, and a V-shaped mark below and a little back of this, transverse band on scutellum and post-scutellum, and spot on posterior lateral angles of metathorax, yellow. Mesothorax finely punctate, but not as closely so as head. When viewed from the side appears slightly ridged. Scutellum and post-scutellum rather more sparsely punctate. Metathorax with a slight rounded cavity. Abdomen black and banded with yellow; 1-6 segments each with a band, interrupted and slightly sinuose on first, either interrupted or narrowed on second and sixth, 3-5 narrowed in centre; terminal segment black, inclined to rufous at extreme tip; with a short growth of whitish hair, finely and closely punctate. First ventral either with or without a yellow spot and three or four yellow bands (growing smaller towards tip) on succeeding segments, the last band interrupted. Hind margin of first three or four segments above inclined to rufous. Legs yellow and black. Fore coxæ yellow tipped and yellow anteriorly, black posteriorly. Trochanters yellow tipped and yellow inwardly, outwardly black. Femora, first four-fifths outwardly black, rest yellow. Tibiæ yellow, with small dark spot inwardly and feebly spinose, slightly inclined to rufous at tip, as are all joints of tarsi except first, which is yellow. Middle and hind legs marked about the same, though either yellow or black may predominate on coxæ and trochanters. Wings inclined to dusky, nervures and stigma inclined to ferruginous. Marginal cell a little longer than first submarginal, appendiculate at apex. First submarginal about as long as the second and third combined on the cubital nervure, the second receiving recurrent nervure near centre, third receiving the nervure at end of first, fourth from second. Stigma with a light-coloured spot before.

Described from two male specimens belonging to Mr. Carl F. Baker

(after whom I have taken the liberty of naming this very pretty species), both from Colorado. [Baker, No. 1631 and 1636].

A. taurulus, Ckll.

A specimen which I have before me [Ckll., No. 4935, Las Cruces, N.M., ♂] differs from Mr. Cockerell's description as given in Trans. Am. Ent. Soc., XXII., p. 293, viz.: Bands on third and fourth segments distinctly separated instead of merely narrowed ventrals hold one band instead of three, and where the others should be are two very small yellow spots apiece. Middle tibiae are lemon-yellow without and rufous black within, instead of "yellow without and lemon within." Hind tibiae have first two-fifths all yellow and last three-fifths all black, and not "yellow without and black within, but wholly yellow at their proximal and wholly black at their distal ends." The sixth segment contains a small yellow dot.

A. 4-notatus, Ashm.

I have two ♂♂ before me. One from Colorado [Baker, No. 1631] and one from Montana, through the kindness of the Am. Ent. Soc. The yellow is a little brighter and more extended in the Colorado than in the Montana specimen, which has the third abdominal band separated, while in the Colorado specimen it is hardly narrowed. Mr. Ashmead's description says: "Mandibles yellow, tips black"; both of above have the yellow confined to base of mandibles, then rufous, and tips black.

A. Utahensis, Baker.

Through the kindness of Mr. Baker, I have had the type of this pretty little species for examination.

A. laticinctus, Cr.

Two males from Colorado were examined [Baker, Nos. 1631 and 1591].

A. frigidus, Sm.

Five ♀♀. Three from Hartford, Conn.; July 30th, two, and August 6th, one (1893). One from Chicago, Ill., July 31, '92, and one from Asbury Park, N. J., July 14, '93. Mr. Baker reports this from Colorado. One specimen shows no yellow on thorax, except band on collar. This was taken at Hartford, August 6th, 1893.

The above notes would tend to show that the abdominal bands are unreliable and vary greatly.

Our species may be separated as follows:

- A. Clypeus strongly tridentate, ground colour rufous through-out..... *Utahensis*, Baker.
- B. Clypeus not strongly tridentate, ground colour of at least head and thorax black.....
1. Last dorsal segment pointed, convex, legs yellow and black.
 - a. Bands of abdomen broad, continuous; clypeus yellow, size small..... *laticinctus*, Cr.
 - b. Bands, especially first three, narrow or interrupted, size larger.
 1. Clypeus face and antennæ black, except for two small yellow spots on face near base of mandibles..... *taurulus*, Ckll.
 2. Face with three broad yellow stripes, middle one shortest..... , *frigidus*, Sm.
 3. Face all yellow..... *Bakeri*, Dun.
 2. Last abdominal segment rectangular and strongly concave, clypeus margined with yellow, *notatus*, Ashm.

This table is Mr. Baker's, and is merely adapted to contain the new species. It was first published in *CANADIAN ENTOMOLOGIST*, XXVII., p. 335-6.

EXPERIMENTAL FARMS OF THE DOMINION OF CANADA.

The annual report of the Director and his assistants for the year 1895 is a goodly volume of over 400 pages, octavo, and is full of valuable and interesting matter. The portion contributed by Dr. Fletcher, the Entomologist and Botanist, contains notices of a large number of injurious insects that have attracted attention during the season in various parts of the Dominion, most of them being familiar pests. Among the less well-known insects referred to may be mentioned the "joint-worm," *Isosoma hordei*, Harris; the "cottony grass-scale," *Eriopeltis festucæ*, Fonsc.; the "cigar case-bearer," *Coleophora Fletcherella*, Fernald; the "peach bark-borer," *Phlaeotribus liminaris*, Harris; the "black peach-aphis," *Aphis persicæ-niger*, Smith; the "New York plum-scale," *Lecanium cerasifex*, Fitch; and the "carrot-fly," *Psila rosæ*, Fab. The most injurious insects of the year appear to have been the grasshoppers of various species, which were excessively abundant in Ontario and the Eastern Provinces.

Dr. Fletcher includes in his report the experiments in bee-keeping carried on under his supervision at the Ottawa Farm, and closes with an account of some of the specially noxious weeds that are proving very troublesome in Manitoba and the Northwest. On the whole, we look upon this report as one of the most useful and interesting that our Dominion Entomologist has yet published.

INDEX TO THE MANTIDÆ OF NORTH AMERICA, NORTH OF MEXICO.

BY SAMUEL H. SCUDDER, CAMBRIDGE, MASS.

In 1889, Westwood, in the Synopsis of the then known Mantidæ, prefixed to his *Revisio insectorum familiae Mantidorum*, credits to North America, north of Mexico, nine species belonging to five genera,—*Gonatista*, *Oligonyx*, *Thesprotia*, *Mantis*, and *Stagmomantis*. Several species were overlooked by him, and in reality up to the present time twenty-three nominal species have been at different times credited to this region and referred to ten genera,—*Ameles*, *Empusa*, *Phasmomantis*, *Stagmatoptera*, and *Theoclytes*, besides the foregoing. Several of the species, however, have been erroneously credited to this country, such as *Empusa gongylodes* and *Mantis gemmata*, both of which are East Indian. Several of the names, moreover, are synonyms of others, so that the number of species these references represent is speedily reduced more than one-half. All of these but *Mantis Wheeleri* Thom., *Phasmomantis sumichrasti* Sauss., and *Oligonyx Uhleri* Stål, I have seen, and to them can add several more not before recognized in the region in question, six of them being apparently hitherto undescribed, together with one genus. The total number of species is fifteen or sixteen, and of genera, eleven, only three of the genera—*Litaneutria*, *Stagmomantis*, and *Oligonyx*—having more than one species; undoubtedly more forms will be found in the West and South.

The group is thus seen to be almost as poorly represented in temperate North America as the Phasmidæ [See CAN. ENT., XXVII., 29]. No species is known to occur in Canada, though a single species or two may possibly be looked for in Southern Ontario and in Assiniboa. The genera, with one exception, belong to the subfamily Mantinæ, and may be separated by the following table, largely adopted from those already given for these insects, by Stål, Bruner, and de Saussure. I add at the end a revision of the nomenclature of the described species, and a determination of the species figured by Glover.

TABLE OF THE GENERA.

A'. Upper surface of middle and hind femora and tibiae rounded; head unarmed (*MANTINÆ*).

b'. Inner margin of upper surface of fore coxae not conspicuously dilated apically.

- c¹. Pronotum but slightly longer than fore coxae; eyes more or less conical; hind femora armed exteriorly with an apical spine.
- d¹. Eyes distinctly pointed (conico-acuminate) above; hind femora delicately incrassate basally, in the ♀ nearly twice as long as the pronotum; tegmina and wings abbreviate or wanting in both sexes; cerci long, distinctly surpassing the infragenital plate *Yersinia*.
- d². Eyes trigonal, scarcely pointed above; hind femora linear, in the ♀ but little longer than the pronotum; tegmina and wings fully developed in the ♂, abbreviate in the ♀; cerci short, not or scarcely surpassing the infragenital plate *Litaneutria*.
- c². Pronotum much longer than fore coxae; eyes rotundate; hind femora with no apical spine.
- d¹. Antennae filiform.
- e¹. Broadest portion of pronotum far in advance of the middle, the sides in front distinctly tapering; outer margin of fore femora armed with main spines only.
- f¹. Body of ♂ very elongate; anal membrane of tegmina violet *Phasmomantis*.
- f². Body of ♂ moderately elongate; anal membrane of tegmina light coloured.
- g¹. Anal and axillary veins of tegmina independent and simple throughout *Callimantis*.
- g². Anal and axillary veins of tegmina apically confluent *Stagmomantis*.
- e². Broadest portion of pronotum hardly in advance of the middle, the sides in front parallel or subparallel; outer margin of fore femora armed with numerous distinct spinules between the main spines. *Gonatista*.
- d². Antennae incrassate beyond the base and thereafter tapering *Brunneria*.
- b¹. Inner margin of upper surface of fore coxae abruptly and considerably dilated at apex.
- c¹. Fore tibiae longer than their apical claw.

- d¹. Fore and hind sections of pronotum subequal in length..... *Oligonyx*.
 d². Hind section of pronotum twice as long as fore section..... *Bactromantis*.
 c². Fore tibiae no longer than their apical claw..... *Thesprotia*.
 A². Upper surface of middle and hind femora and tibiæ carinate; middle of head with an erect process as long as the head (VATINÆ)
 *Theoclytes*.

SUBFAMILY MANTINÆ.

VERSINIA Saussure.

I know of but a single and undescribed species in the United States, of which I have specimens obtained by Morrison, in Colorado, on the plains at the base of the Rocky Mountains, and by myself at Garland, Costilla Co., Colorado, at a height of about 8,000 feet. Probably it is this species which Bruner found in Western Nebraska and referred (Publ. Nebr. Acad. Sci., 1893, 22) doubtfully to *Y. mexicana*. The species, which may be called *Y. solitaria*, is slenderer and slightly smaller than *Y. mexicana*, and is apterous in both sexes.

LITANEUTRIA Saussure.

The only species of this genus heretofore known as such was described from Sonora, but we have more than one species in the West. One is *L. minor* (*Stagmatoptera minor* Scudd.), figured by Glover (Ill. N. A. Ent., Orth., pl. 13, fig. 12), and of which I have seen specimens from Texas, New Mexico, Utah, Colorado, and Nebraska. It was originally described from the ♀ only. A very small ♀, apparently of this species, from Bridger Basin, Wyoming, is in the Museum of Comp. Zoology. Bruner has also sent me specimens from Arizona, California, and Kansas, and it is probably the "Ameles sp." mentioned by him (N. A. Fauna, VII., 266) as found in New Mexico, Arizona, California, Southern Idaho, and Middle Nevada. The undescribed "Ameles borealis" of Bruner (Publ. Nebr. Acad. Sci., 1893, 22), from Northern and North-western Nebraska, of which he has kindly shown me a pair of ♀'s, is perhaps distinct from it, with smoother pronotum. Another species, closely allied to this, differing indeed only, so far as I have seen, in the far greater depth of the fuliginous mottling of the wing of the male (both have the same large sub-basal fuligino-fuscous spot, seen also in *L. ocularis* Sauss.), is apparently undescribed, and occurs in Arizona, South-

ern California and Lower California; it may be called *L. obscura*. I have also females from Utah and New Mexico which may belong to either of the above. Still another species occurs in Northern California, in the Shasta region, in which the wings are feebly and uniformly fuliginous, having no sub-basal fuligino-fuscous spot; it may be called *L. pacifica*. In all of them the front border of the tegmina is griseo-pellucid, and thus different from the Sonoran *L. ocularis*; this last species comes nearest *L. minor*. The males in this genus are fully winged, the females brachypterous and of a very different appearance.

PHASMOMANTIS Saussure.

P. sumichrasti Sauss., a Mexican species, is reported by Saussure and Zehntner (Biol. Centr. Amer., Orth., 149) as found in Texas. I have seen no specimen of the genus from the United States.

CALLIMANTIS Stål.

I place in this genus a single species which differs considerably from the type, *C. antillarum* (Sauss.), in general livery and in lacking any apical spine to the hind femora. It is an undescribed species from Florida, a trifle smaller than *C. antillarum* and closely resembling a miniature *Stagmomantis carolina*. It may be called *C. floridana*. I have only seen the male, which was probably green in life, but is now uniformly testaceous, the tegmina hyaline, without stigma, the costal margin like the rest, and the first ulnar branch completely simple; the wings are hyaline, but are rather sparsely tessellate with fuscous in their posterior third, and the ulnar vein is simple; the proportions and general shape of the pronotum are those of *Stagm. carolina*, and, as there, it is unarmed; the anterior upper margin of the fore coxae is armed with slight, distant spines, and the hind femora, and tibiae are tipped apically with fuscous. The expanse of the tegmina is 45 mm.

STAGMOMANTIS Saussure.

Of this genus I can recognize but two species, *T. carolina* (Linn.) and *S. limbata* (Hahn), readily distinguished by the great and uniform width of the costal field of the tegmina in the ♀ of the latter, where it is nearly one-third the entire width of the tegmina, and the green colour and opacity of the same field in the ♂. The former species is strongly dimorphic in the ♀, one form (*carolina*) having the tegmina strongly mottled with fuscous and the wings strongly fuliginous throughout, with a deep patch at the apex; the other (*dimidiata*), which is generally

classed as a distinct species, is entirely green, but with the posterior half of the wings sometimes strongly infuscated in the cells. As occurring in the United States, I do not see how the two forms can be specifically separated, as there are no similar distinctions in the very variable male, which is never green, but in which the tegmina may be wholly hyaline except along the costal margin, or they may be flecked with fuscous, or wholly suffused with fuliginous, while the wings vary from wholly hyaline to wholly fuliginous, with a tendency to a greater amount of fuliginous posteriorly. In some specimens from Las Cruces, N. Mex., the base of the wings is feebly violet. The species appears to be even more variable in Mexico, and the South American forms referred to *dimidiata* seem also to belong here. In the United States it is found (both forms indiscriminately) along the entire southern tier of States and territories from Florida to Arizona (Ft. Buchanan, south of Tucson, and Ft. Whipple, near Prescott), but I have neither seen nor heard of specimens from the Pacific Coast proper. From here it ranges north to Maryland, southern Illinois, Missouri, Kansas, and Utah, to judge from specimens seen by me. It is also reported from New Jersey [Smith], Pennsylvania [Westwood], Kentucky [Garman], and Nebraska [Bruner]. Saussure credits it to Cuba and Bolivar, accordingly, places it in the Cuban list, but says it does not exist in the Gundlach collection. On the other hand, I have received it from Gundlach under the number ³₄₀. It is also found at Key West. It is in the highest degree probable that Thomas's *Mantis Wheeleri* belongs to this species and probably to the form named *tolteca* by Saussure, which Saussure and Zehntner have separated as a distinct species. It seems to me rather a geographical race.

S. limbata (*viridimargo* and *cellularis* Burm.; *longipennis* Sauss.) has never been reported from the United States, but is found on our extreme Southern borders, as I have seen specimens taken at Matamoras, Mex., just over the border, on the Rio Grande; from the old Ringgold Barracks, on the lower Rio Grande [Schott]; an unspecified point in Texas, Schaupp [Henshaw]; Arizona, Morrison [Henshaw]; and Las Cruces, N. Mex. [Cockerell].

GONATISTA Saussure.

We have a single species of this genus in the United States, *G. grisea* (Fabr.), which has many synonyms. It occurs in Cuba and San Domingo, and rarely in the Eastern United States, where it is probably an interloper. I have specimens from Key West and Fernandina, Fla., and from Georgia, and recently Mr. Blatchley sent me a specimen taken in Indiana. It was figured by Glover (pl. 16, figs. 13-15) as from Florida.

BRUNNERIA Saussure.

A single female specimen of this genus, remarkable for its peculiar antennæ, is in my collection, collected by Aaron on the Gulf Coast of Texas. It is distinct from the species heretofore described, all four of which come from S. America, the genus being unknown in Mexico and Central America. It may be called *B. borealis*. It is completely apterous, very elongate and slender, greenish with a ferruginous tinge which is predominant on the thorax; the antennæ, pallid at base, are pale ferruginous in the swollen portion, growing luteous beyond; the posterior part of the pronotum is three times as long as the anterior and is rather distinctly beaded with tubercles or blunt spinules along its lateral margins; the supra-anal plate is sublanceolate, much longer than its basal breadth, and the cerci slender, delicately tapering, about half as long as the fore femora. Length of body about 50 mm.; of antennæ about 12 mm. This specimen is doubtless immature, for a second, much larger, mature specimen from Texas, obtained by A. Agassiz, is in the Museum of Comp. Zoology. It has short and broad tegmina, reaching only the middle of the metanotum, and the body is 88 mm. long.

OLIGONYX Saussure.

Three species belonging to this genus, as latterly restricted, have been described from the United States: *O. Scudderii* Sauss., from Georgia; *O. Uhleri* Stål, from Louisiana; and *O. bollianus* Sauss.-Zehntn., from Texas and Northern Mexico. The first has also been credited, by Stål, to Texas, and is figured under this name by Glover (Ill. N. A. Ent., Orth., pl. 16, fig. 11, ♀), and as *Mantis missouriensis* Riley, by the same (Ibid., pl. 13, fig. 11, ♂). Whether these nominal species are distinct from one another I have not now sufficient means of deciding. *O. Scudderii*, though labelled as coming from Georgia, was originally thought by Saussure to really come from Central America, but he is now evidently of a different opinion, as it is not included in the Biologia Centrali-Americana. I have a specimen from Carolina which agrees with his description of *O. Scudderii*, and an immature specimen, apparently of this genus and about 6 mm. long, was found with others running about in a house in Waterville, N. Y., and sent to Mr. J. A. Lintner with enquiries. It proved to have probably hatched from eggs accidentally sent in the "moss" (*Usnea*) used in packing a barrel of oranges from Florida. So the genus occurs in the South-eastern States. My Carolina specimen is a trifle

stouter than numerous specimens from Texas (Boll, Belfrage, Lincecum), which altogether agree with *O. bollianus*, as do specimens sent me from Lincoln, Nebr., by Bruner, as *Mantis missouriensis*. I am therefore inclined to believe these two supposed species to be identical, and probably distinct from Stål's darker *O. Uhleri*, which I have not seen.

BACTROMANTIS (*βάκτρον*, Mantis), gen. nov.

Closely allied to *Oligonyx*, and, indeed, equivalent to the second division of that genus by Stål (Bihang K. Svensk. Akad. Handl., iv., No. 10, 67), to which he refers an unnamed species from Mexico. It comprises those species hitherto placed in *Oligonyx* (Stål, emend.) as have a very elongate instead of abbreviate pronotum, in which the hinder section is fully twice as long as the fore section. To it belongs only a single species from the United States, which may be called *B. virga* (possibly the species given in Westwood's Synopsis as *Thesprotia baculina* Bates MS., from Eastern Florida may be the same). I have only seen the apterous female; it is testaceous, the fore femora obscurely and narrowly banded with fuscous, the other legs greenish yellow; the apex of the femora broadly, the base and apex of the tibiae narrowly, infuscated. Length of body, 43 mm.; of pronotum, 15 mm. Sandford, Fla.; collected by Frazer.

THESPROTIA Stål.

We have a single species of this genus, *T. graminis*, named by Bates and described by me many years ago as an *Oligonyx*. I described only the ♂; the ♀ is apterous. It occurs in Florida, from Key West northward, and in Georgia.

SUBFAMILY VATINÆ.

THEOCLYTES Serville.

I here follow Saussure rather than Stål in restricting Serville's genus to his first subdivision, or what Serville at the outset terms *Theoclytes propriæ dicta*. The only species known in the United States is *T. chlorophæa* (Blanch.), which occurs throughout Mexico, and is said to extend, says Saussure, to the United States as far as New York. It was originally described from Watertown, N. Y., but has since been recorded only from Central America, Mexico, and Louisiana. Saussure remarks that it probably does not extend northward beyond the Southern States. This seems altogether probable. The only specimen I possess comes from just over the Texan border at Matamoras.

Revision of the Nomenclature.

- Ameles borealis* Brun., *Publ. Nebr. Acad. Sc.*, 1893, 22 = *Litaneura borealis*.
- Ameles mexicana* Brun., *Ibid.*, 1893, 22 = *Yersinia solitaria*?
- " sp., Brun., *N. A. Fauna*, vii., 266 (1893) = *Litaneura minor*.
- Empusa chlorophaea* Blanch., *Hist. Nat. Ins.*, iii., 2 (1840) = *Theoclytes chlorophaea*.
- Empusa gongylodes* Westw., *Drury's Ins.*, i., 122 (1837), East Indian.
- Gonatista grisea* Sauss., *Mant. Amer.*, 23 (1871) = *Gonatista grisea*.
- Mantis carolina* Linn., *Syst. Nat.*, Ed. 12, ii., 691 (1767) = *Stagmomantis carolina*.
- Mantis chlorophaea* Blanch., *Mag. Zool.*, v., 135 (1835) = *Theoclytes chlorophaea*.
- Mantis conspurcata* Serv., *Orth.*, 190 (1839) = *Stagmomantis carolina*, ♂.
- Mantis ferox* Sauss., *Rev. Mag. Zool.*, 1859, 60 = *Stagmomantis carolina*.
- Mantis gemmata* Stoll, *Spectres* 71 (1787), East Indian.
- " *gongylodes* Drury, *Ill.*, i., 129 (1770), East Indian.
- " *grisea* Fabr., *Ent. Syst.*, ii., 20 (1793) = *Gonatista grisea*.
- " *inquinata* Serv., *Orth.*, 191 (1839) = *Stagmomantis carolina*.
- Mantis missouriensis* Riley, *Glov.*, Ill. N. A. Ent., *Orth.*, pl. 13, fig. 11 (1872) = *Oligonyx Scudderii*.
- Mantis phryganoides* Serv., *Orth.*, 198 (1839) = *Gonatista grisea*.
- Mantis Wheeleri* Thom., *Rep. Geol. Surv.* 100th mer., v., 849 (1875) = *Stagmomantis carolina*?
- Oligonyx bolianus* Sauss.-Zehntn., *Biol. Centr. Amer.*, *Orth.*, 173 pl. 9, fig. 17 (1894) = *Oligonyx Scudderii*.
- Oligonyx graminis* Bates, *Scudd.*, *Proc. Bost. Soc. Nat. Hist.*, xix., 90 (1877) = *Thesprotia graminis*.
- Oligonyx Scudderii* Sauss., *Mant. Amer.*, 121, pl. 2, fig. 24, 24a (1871) = *Oligonyx Scudderii*.
- Oligonyx Uhleri* Stål, *Bih. K. Svensk. Akad. Handl.*, iv., No. 10, 66 (1877) = *Oligonyx Uhleri*.
- Phasmomantis carolina* Brun., *Bull. Washb. Coll.*, i., 125 (1885) = *Stagmomantis carolina*.
- Phasmomantis sumichrasti* Sauss.-Zehntn., *Biol. Centr. Amer.*, *Orth.*, 149 (1894) = *Phasmomantis sumichrasti*.

Pseudovates chlorophæa Westw., Rev. Mant., 24 (1889) = *Theoclytes chlorophæa*.

Stagmatoptera minor Scudd., Rep. Geol. Surv. Nebr., 251 (1872) = *Litaneura minor*.

Stagmomantis carolina Sauss., Mant. Amer., 46 (1871) = *Stagmomantis carolina*.

Stagmomantis dimidiata Sauss., Ibid., 48 (1871) = *Stagmomantis carolina*.

Stagmomantis minor Sauss., Ibid., 54 (1871) = *Litaneura minor*.

Stagmomantis tolteca Sauss.-Zehntn., Biol. Centr. Amer., Orth., 143 (1894) = *Stagmomantis carolina*.

Theoclytes chlorophæa Serv., Orth., 153 (1839) = *Theoclytes chlorophæa*.

Thesprotia baculina Bates, Westw., Rev. Mant., 5 (1889) = *Bactromantis virgo*?

Explanation of the figures of Mantidæ

on the plates of Glover's Illustrations of N. A. Entomology, Orthoptera :—

Pl. 2. *Stagmomantis carolina* (Linn.).

Pl. 12, fig. 16. No name or locality is given; it probably does not come from the United States.

Pl. 13, fig. 11. *Oligonyx Scudderii* Sauss., ♂.

fig. 12. *Litaneura minor* (Scudd.), ♀.

Pl. 16, fig. 11. *Oligonyx Scudderii* Sauss., ♀.

fig. 13. *Gonatista grisea* (Fabr.), pupa.

fig. 14. " " " ♀.

fig. 14a. " " " ootheca.

fig. 14b. " " " larva.

fig. 15. " " " ♂.

A VARIETY OF *HEPIALUS ARGENTEO-MACULATUS*.

BY E. F. HEATH, "THE HERMITAGE," CARTWRIGHT, MANITOBA.

When Mr. Fletcher was looking over my cases of moths during the short visit he paid me last summer, he particularly noticed a series of *Hepialus argenteo-maculatus*, and suggested that a short description of a variety that I have taken here would be interesting.

This variety differs so much from the normal type that it might almost be a distinct species, but that is a point I cannot pretend to determine.

The ordinary specimens I have taken here measure from $3\frac{1}{4}$ to $3\frac{1}{2}$ inches across the expanded wing, but this variety only averages about 2 inches. The ground colour of the fore wings in the case of one female is almost white, with markings similar in pattern to those of the large variety, faintly outlined in greenish-brown; the wings are also rather more pointed than in the normal type. The hind wings are smoke-coloured, as are also the thorax and abdomen. In another specimen, a male, the fore wings are white with a slight shade of salmon colour, without any markings whatever; the hind wings are a shade or two darker, and the thorax and abdomen correspond in colour to the wings adjacent to them.

The habits of both varieties are very similar. I have taken both flying with their peculiar oscillating flight over low cherry scrub, or just on the verge of higher patches. It is a very curious sight to see several of these large moths performing their oscillations for several minutes over the same spot soon after sunset in the early summer—July; the flight being very rapid.

Here I believe the larva to feed upon both the wild black and red cherry, for I have once or twice shaken the pupa out of the roots of cherry scrub when digging some scrubby ground for a garden. I remember being much struck by the locomotive powers of one that I laid aside for a few minutes, and which managed to wriggle a considerable distance, comparatively, in a short space of time.

NOTE ON EUTOLYPE ELECTILIS.

BY A. RADCLIFFE GROTE, A.M., HILDESHEIM.

Prof. Roland Thaxter has sent me a specimen of what may be *E. electilis*, Morrison, and says: "The *Eutolype* is, as I suppose, *electilis*, and is subject to very great variation as to the depth and disposition of the darker shades and the clearness of the maculation, some being more or less obliterate and others on the plan of *Coelodasys biguttatus*, var. *cinerofrons*." This is the first specimen I have had, and I can only say it represents a species distinct from *Rolandi* or *depilis*. Unfortunately, the abdomen is missing, and I cannot say if it is tufted. The black dash described by Morrison is incomplete. I saw the type in the Tepper collection, but had no opportunity of comparing it with the others. It reminded me, on a very cursory examination, of *muralis*, but as all the species have the peculiar facies of the group, this comparison goes for

nothing. In my Bremen List I suggest the identity of *bombyciformis*, Sm., with *electilis*, and this, considering what Prof. Thaxter says of the variability of *electilis*, may prove to be the case. The two descriptions do not contradict essentially. On page 59 of his paper, Prof. Smith says : "I do not know where Morrison's type is to be found." On page 57 he says : "There is a badly-rubbed specimen, I believe in the Tepper collection marked 'type' by Mr. Morrison, in which the basal dash is broad and suffused ; but I did not otherwise compare it with the description." I may ask why this specimen is not Morrison's type, since all other types in coll. Tepper are pronounced without doubt to be "the type"? With such a variable species as *electilis* evidently is, I cannot do more than suggest that Morrison's type be looked up by Prof. Smith. This type must be still in the Tepper collection, from which Prof. Smith has again had types only recently in working the *Hypeninae*. To have this matter cleared up would be a great help, as "*electilis*" is cumbering our lists without being positively applied to any species in the collections.

JOHN B. LEMBERT.

The tidings of the tragic death of "the Entomologist of the Yosemite," as he was locally called, was a great shock to his many correspondents. On the 19th of April last, a passing Indian found the body of Mr. Lembert lying dead in his cabin, with a large bullet-hole in his head, over the right temple. He had evidently been murdered, as the cabin was found locked on the outside with a padlock. The crime is supposed to have been the work of some Indian whom he had offended, as he had no money or other valuables. From the condition of the body it was considered that the murder had been committed about the first of April.

Mr. Lembert was a native of New York, but had lived for many years among the mountains of California. He owned a bit of land at the headquarters of the Tolumne River, at an altitude of 9,000 feet, and lived there like a hermit till his property was included in the Yosemite Park. As he wrote me last year, he then lost his home and was "shut out of making a living from the stockmen. Mr. Dyar came along like an angel unawares, and, at the age of fifty-one, he commenced to collect insects, having been living in the sight of nature continuously for twenty years." He occasionally acted as guide to parties visiting the mountains, and in this way made the acquaintance of Mr. Dyar, who in-

terested him in entomology, and taught him how to observe and collect. This was in 1891. He was, therefore, 56 years of age at the time of his death, though supposed to be a very much older man. He succeeded in collecting a number of rare species, and made many careful observations on the life habits of these and others, some of which have been published in this and other entomological magazines. The last time I heard from him was in February, when he sent me some specimens and a note on the preparatory stages of *Arctia virginalis*. His untimely death is a loss to entomology, as he was a keen observer and diligent collector in a little-known locality, and had only just begun a work which would have been of great value. He lived all alone among the mountains, and has left neither wife nor child to mourn his departure. C. J. S. B.

COLIAS CÆSONIA.—In our last issue the capture of this butterfly at Toronto was recorded. Mr. James Walker, of Orillia, Ont., writes: "I saw numbers of *Colias Cæsonia* flying over a clover field to-day (July 13th). I captured four, two of which were perfect. I had only liberty to walk on the edge of the field, or I might have been more successful. Mr. Grant has also captured five or six."

Mr. E. F. Heath writes, from Cartwright, Manitoba: "On June 19th I captured a rather worn specimen of *C. Cæsonia*. A few days subsequently I had a distant view of what I took to be another example. On July 10th I chased, but did not succeed in capturing, a fresh-looking specimen, and on the 15th was fortunate enough to take a very good one. I have since seen one or two more. It is not very easy of capture when assisted by a prairie breeze. This is the first time I have noticed the butterfly during a residence in the country of sixteen years."

LIBYTHEA BACHMANI.—Mr. McDonough captured a specimen east of Toronto, in 1895, and one in his garden in the city on the 7th of June last. The only previous Canadian records are Port Stanley, London and Hamilton.

THECLA SHERIDANI.—No less than fifteen specimens of this extremely rare butterfly were taken in the foothills west of Fort Collins, Colorado, at the end of April, by Professor Gillette, of the State Agricultural College, Fort Collins, and Mr. S. T. Mason, of Denver, Colorado.

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